

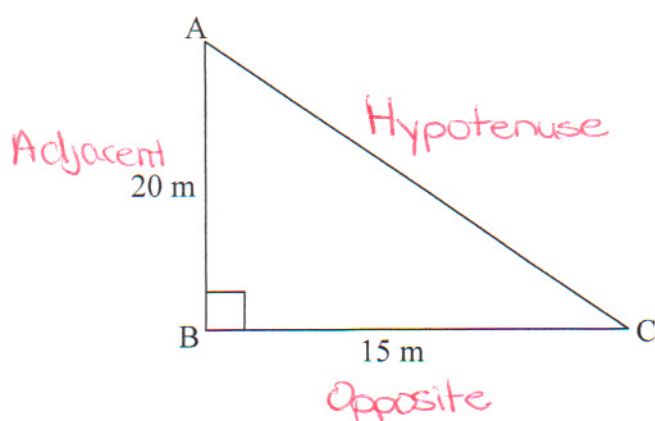
## Quiz # 1 – Trigonometry

Overall Level \_\_\_\_\_

	Incomplete 0	Unacceptable 2 - 4	Poor 5	Acceptable 6	Good 7 - 8	Outstanding 9 - 10
TECHNICAL CORRECTNESS OF SOLUTIONS	All or most solutions are blank	No solutions are correct or many left blank	Few solutions are technically correct	Some solutions are technically correct	Most solutions are technically correct	All or almost all solutions are technically correct

Level 1

1. For the following triangle, LABEL the sides with respect to angle A. Then state the three primary trigonometric ratios for angle A (ie: Sin A, Cos A and the Tan A)  
You must find the length of the hypotenuse first. *Remember to reduce all fractions to lowest terms.*  
**Do Not solve for angle A.**



$$\begin{aligned}
 AC^2 &= 20^2 + 15^2 \\
 &= 400 + 225 \\
 &= 625 \\
 AC &= \sqrt{625} \\
 &= 25
 \end{aligned}$$

$$\begin{aligned}
 \sin A &= \frac{15}{25} \\
 &= \frac{3}{5} \\
 \cos A &= \frac{20}{25} \\
 &= \frac{4}{5} \\
 \tan A &= \frac{15}{20} \\
 &= \frac{3}{4}
 \end{aligned}$$

2. Use your calculator to evaluate each of the following. **Round your answers to the nearest thousandths.**
- a)  $\sin 57^\circ = \underline{0.839}$       b)  $\tan 28^\circ = \underline{0.532}$
- c)  $\cos 310^\circ = \underline{0.643}$       d)  $\sin^{-1}(0.866) = \underline{59.997}$

Level 2

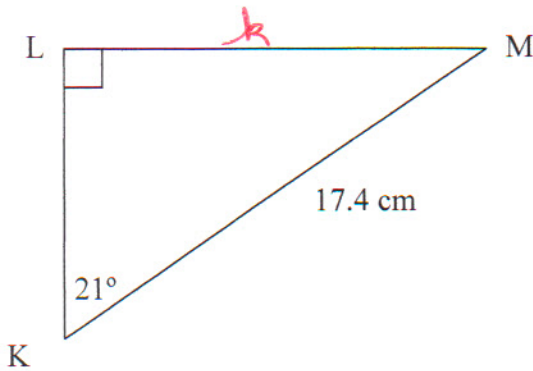
3. If angle A is between  $0^\circ$  and  $180^\circ$ , and  $\cos A = -\frac{3}{4}$ , is angle A going to be acute, obtuse, neither or both.  
obtuse
4. Find the measure or measures for angle A from the question 3 to the nearest degree.

139°

5. If angle Y is between  $0^\circ$  and  $180^\circ$ , and  $\sin Y = 0.7193$ :

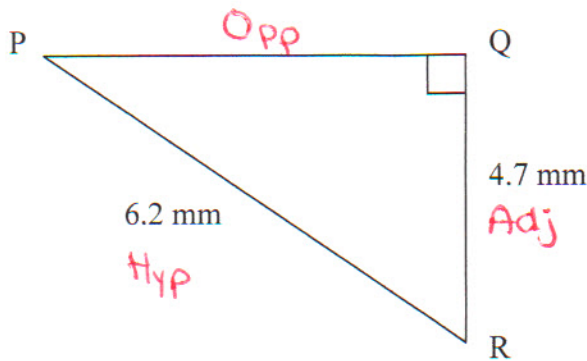
- a) How many values of angle Y are there? 2
- b) Find the measure or measure(s) of angle Y to the nearest degree.  $46^\circ$  or  $134^\circ$
- c) The cosine of an obtuse angle is -0.67. Calculate the tangent of this angle to 3 decimal places. -1.108
- d) The sine of an obtuse angle is 0.875. Calculate the cosine of this angle to 3 decimal places. -0.484

6. Find side “k” (round to **one decimal place**)



$$\begin{aligned}\sin 21^\circ &= \frac{k}{17.4} \\ 17.4 \sin 21^\circ &= k \\ 6.2 \text{ cm} &= k\end{aligned}$$

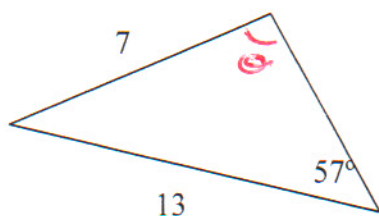
7. Find angle R to the nearest degree.



$$\begin{aligned}\cos R &= \frac{\text{Adj}}{\text{Hyp}} \\ \cos R &= \frac{4.7}{6.2} \\ R &= \cos^{-1}\left(\frac{4.7}{6.2}\right) \\ R &= 41^\circ\end{aligned}$$

Level 3

- 8.
- Solve
- the following triangle.

Round all side lengths to the **nearest tenth** and all angles to the **nearest degree**.

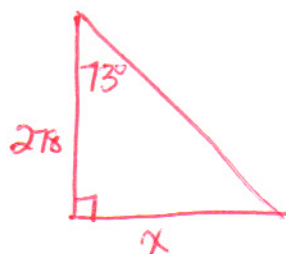
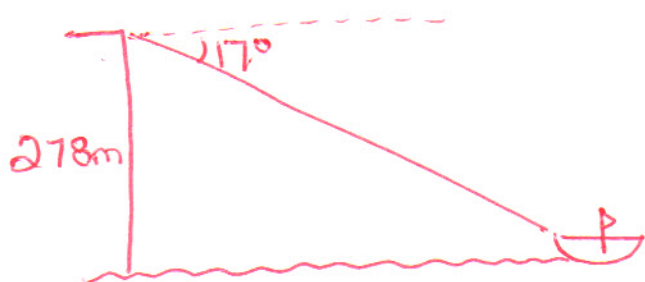
$$\frac{\sin \theta}{13} = \frac{\sin 57^\circ}{7}$$

$$\sin \theta = \frac{13 \sin 57^\circ}{7}$$

$$\sin \theta = 1.557$$

∴ the triangle is not solvable.  
We can't draw this triangle

9. From the top of a cliff 278 m high, the angle of depression to a boat out at sea is  $17^\circ$ . How far is the boat from the base of the cliff (to the **nearest hundredth** of a meter)? Include a labelled diagram with your solution. **Don't forget your concluding statement.**



$$\tan 73^\circ = \frac{x}{278}$$

$$278 \tan 73^\circ = x$$

$$909\text{m} = x$$

∴ the boat is 909.30m from the base of cliff